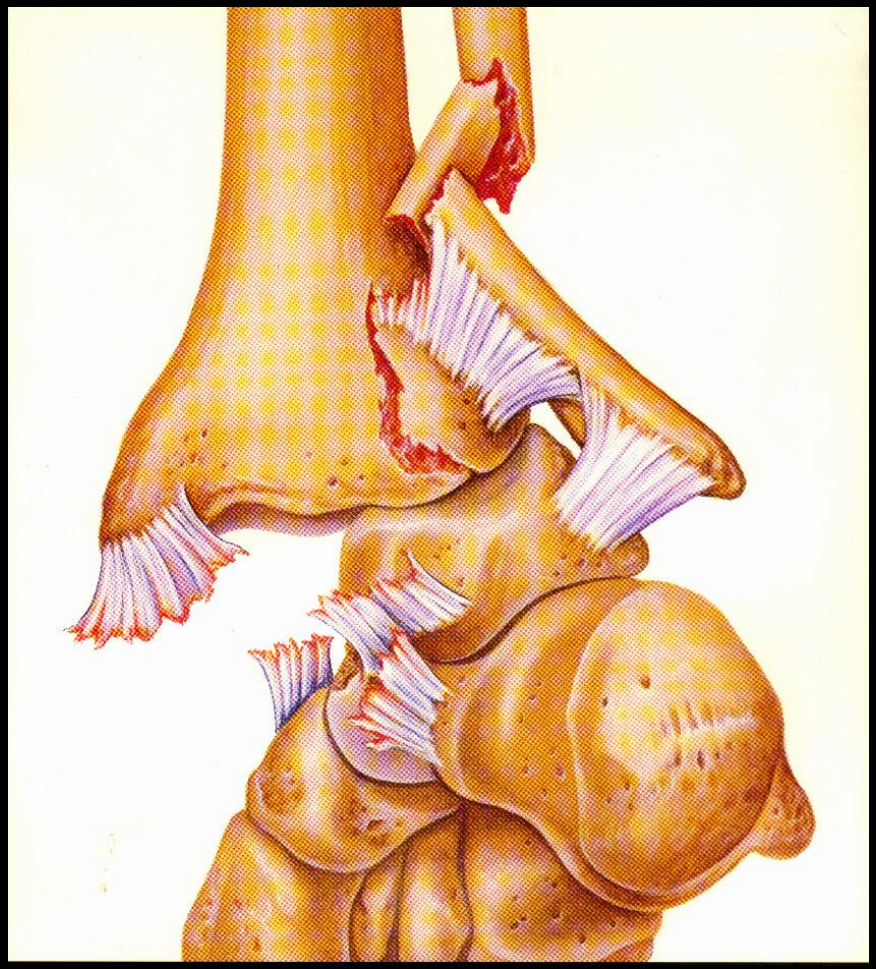


Ankle Fractures


Fernando de la Huerta

Ankle Fractures

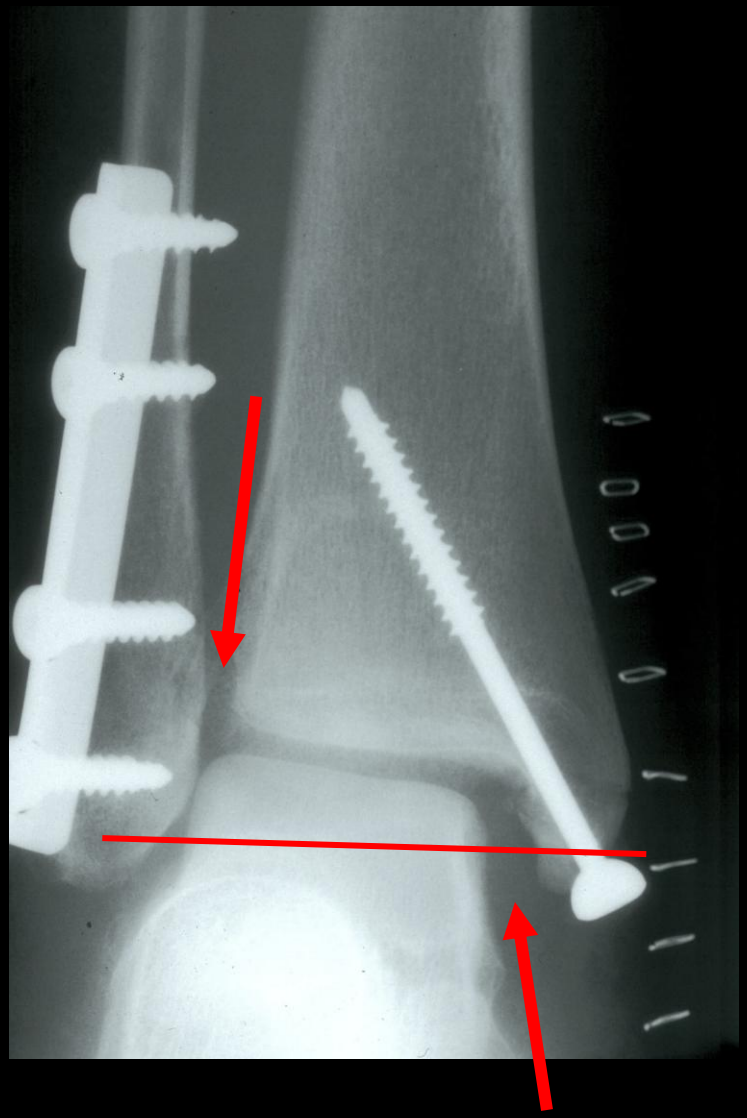
- Common problems
- How to treat
- How to avoid

Best salvage for these problems

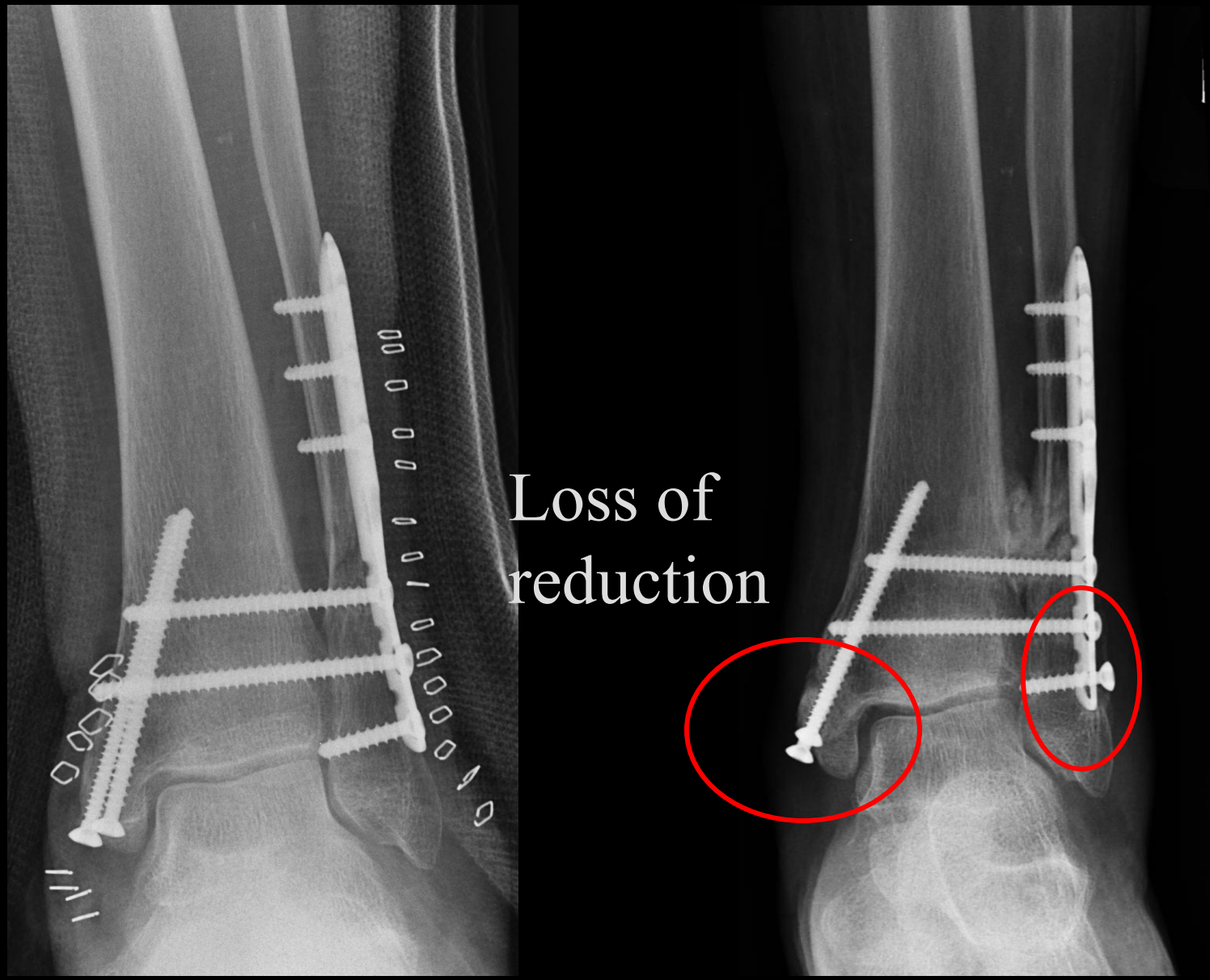
Avoid them

Keys to Stability

- Anatomic position of:
    - fibula
- Status of:
    - syndesmosis
- Minimal contribution:
    - posterior malleolus



Osteoporosis


Loss of
reduction

- Care must be taken when treating the osteopenic
- Special techniques may be needed

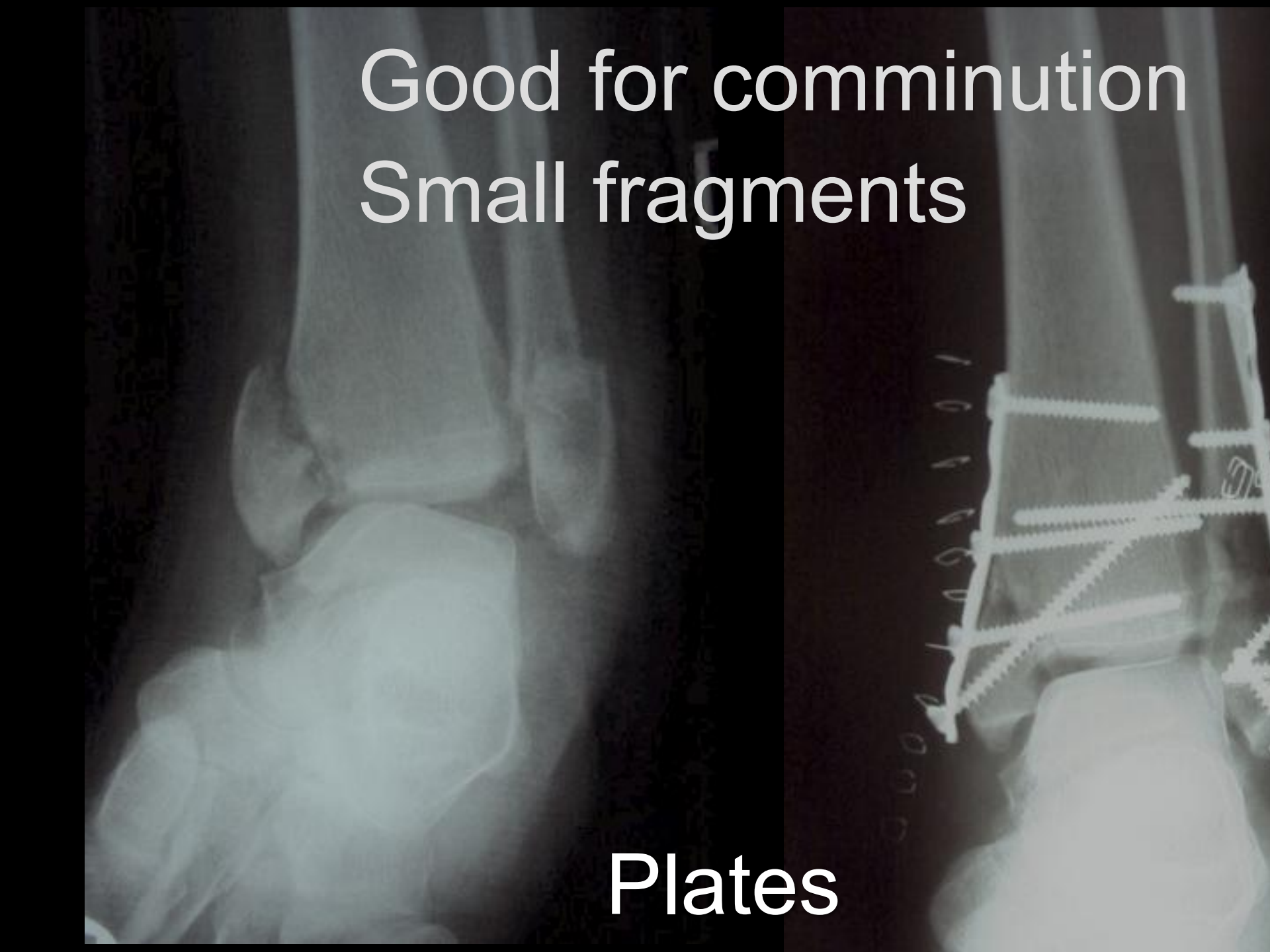
- Cancellous screw position
- Cortical lag screws
  - Long
- Plates
- Supplemental k-wires

using partially threaded screws-use right size

Cancellous screws

- Allows maximal purchase
- May use very long screws
- Can be bicortical if necessary

Cortical screws


Good for comminution
Small fragments
Plates

Used with screws/plates

- –Small fragment
- –Bad screw purchase


K-wires

- Used with plates and screws
- K-wire placed prior to screws
- Increases purchase of screws

Intramedullary K-wires

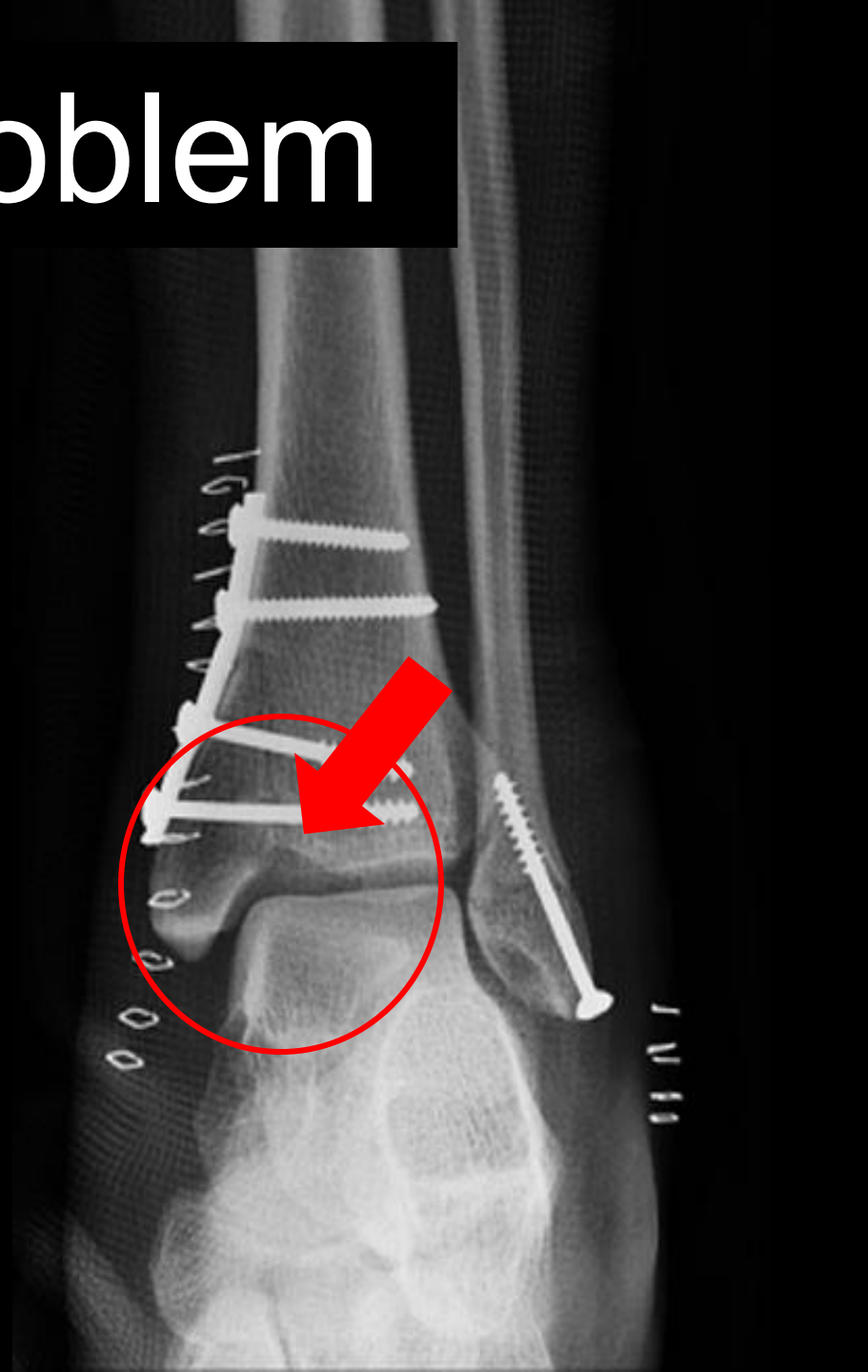
- Use different techniques with osteoporosis
- Ankle fractures can be simple
  - Be careful and look carefully
  - Full understanding of fracture is essential

84 Y.O, F

- ORIF of ankle

The problem

- ORIF of ankle



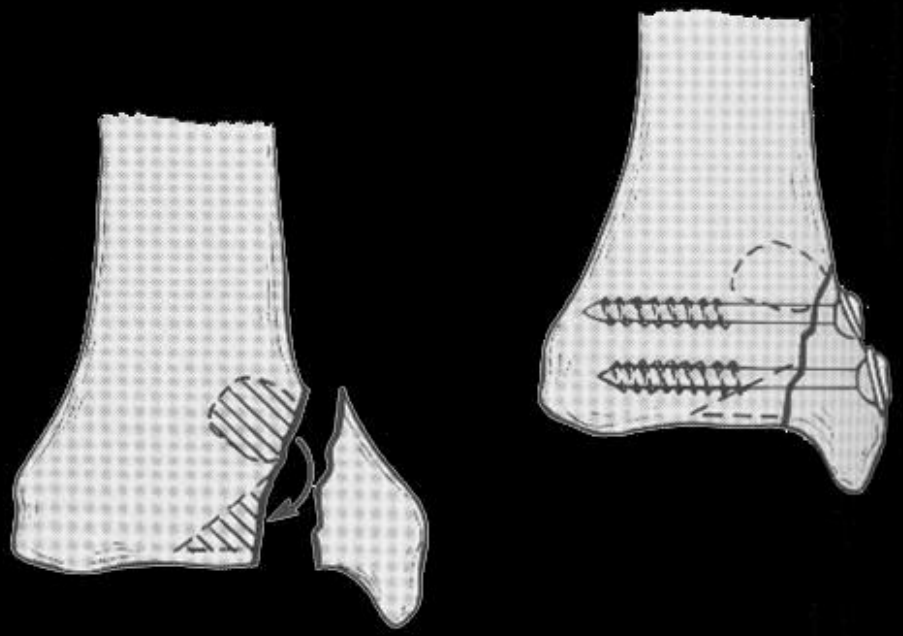
Salvage

- Must elevate the impaction
- Use local bone graft
- Subchondral screw

Elevate Impaction

Screws perpendicular

Sometimes buttress plate

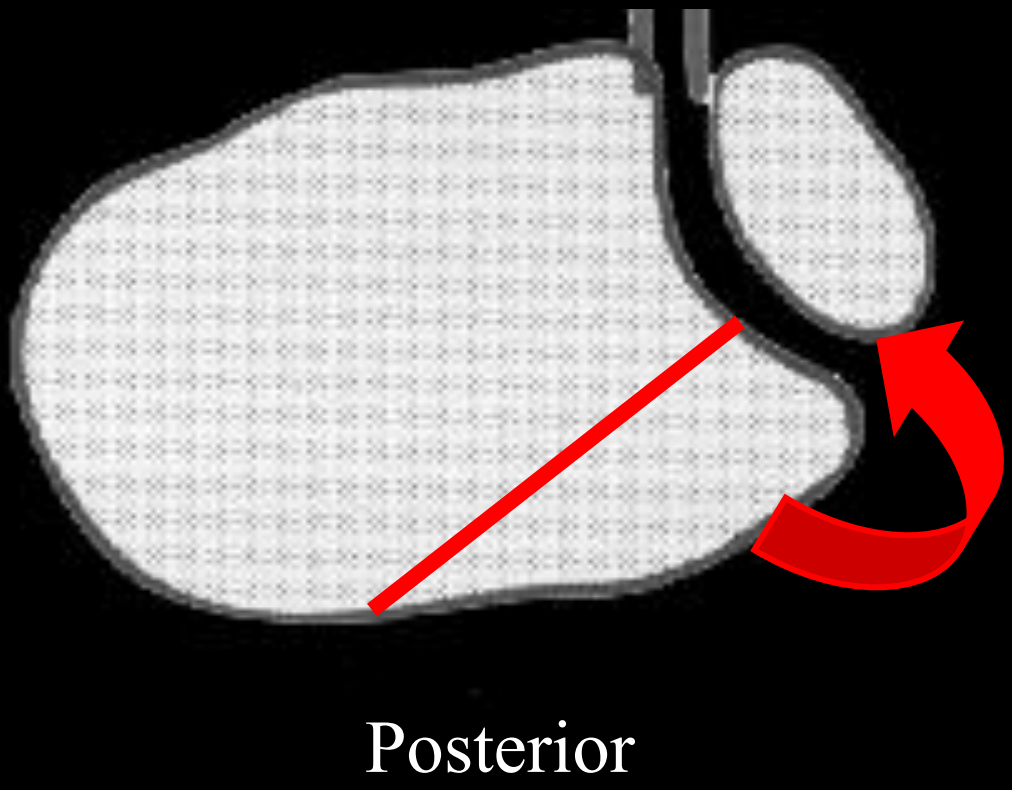


Salvage

- Must elevate the impaction
- Use local bone graft
- Subchondral screw

Posterior malleolar fracture

- Tension fracture, indirect force
- Posterior tib-fib ligament
- Posterolateral fragment

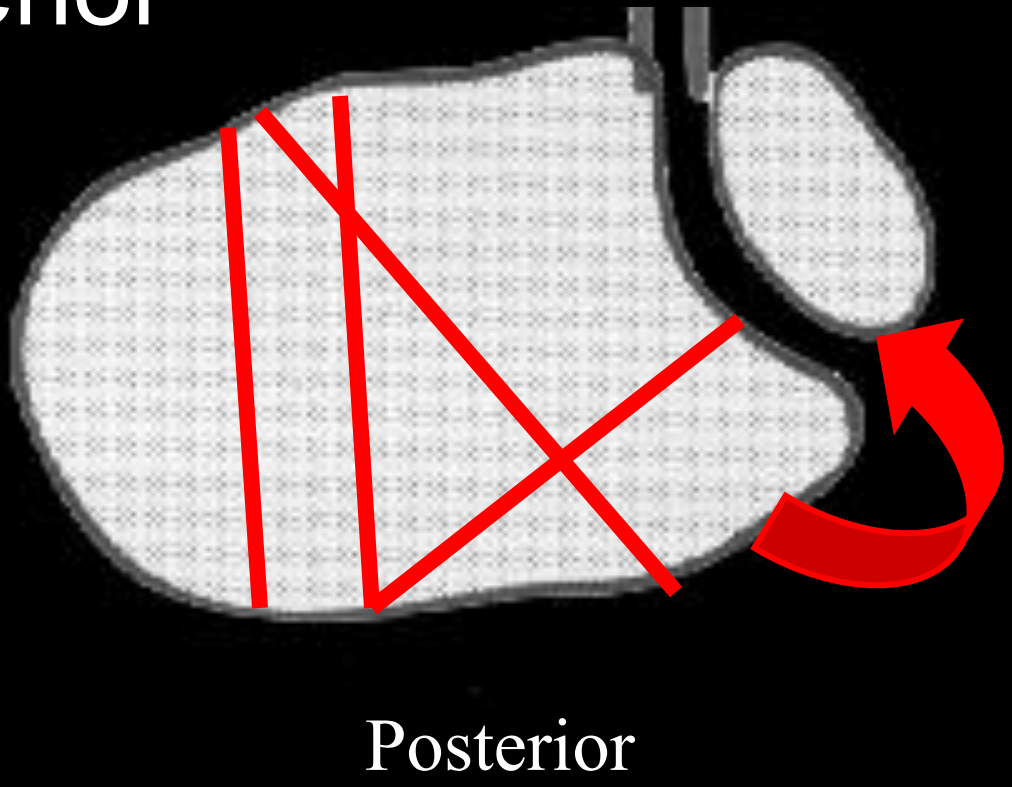


Posterior malleolar fracture

- Tension fracture, indirect force
- Posterior tib-fib ligament
- Posterolateral fragment

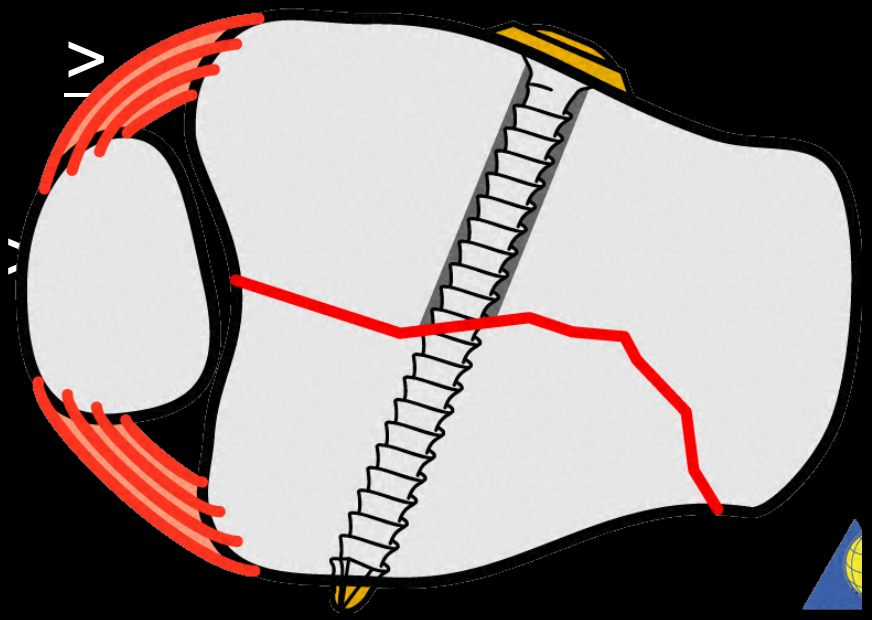
Screw fixation

- Anterior to posterior screws
  - –Miss fragment
- Anteromedial to posterolateral
  - –True lag screws



Basic indications

- fragment
  30% articular surface
- articular incongruity
  2mm step / gap
- joint instability
- Stress test



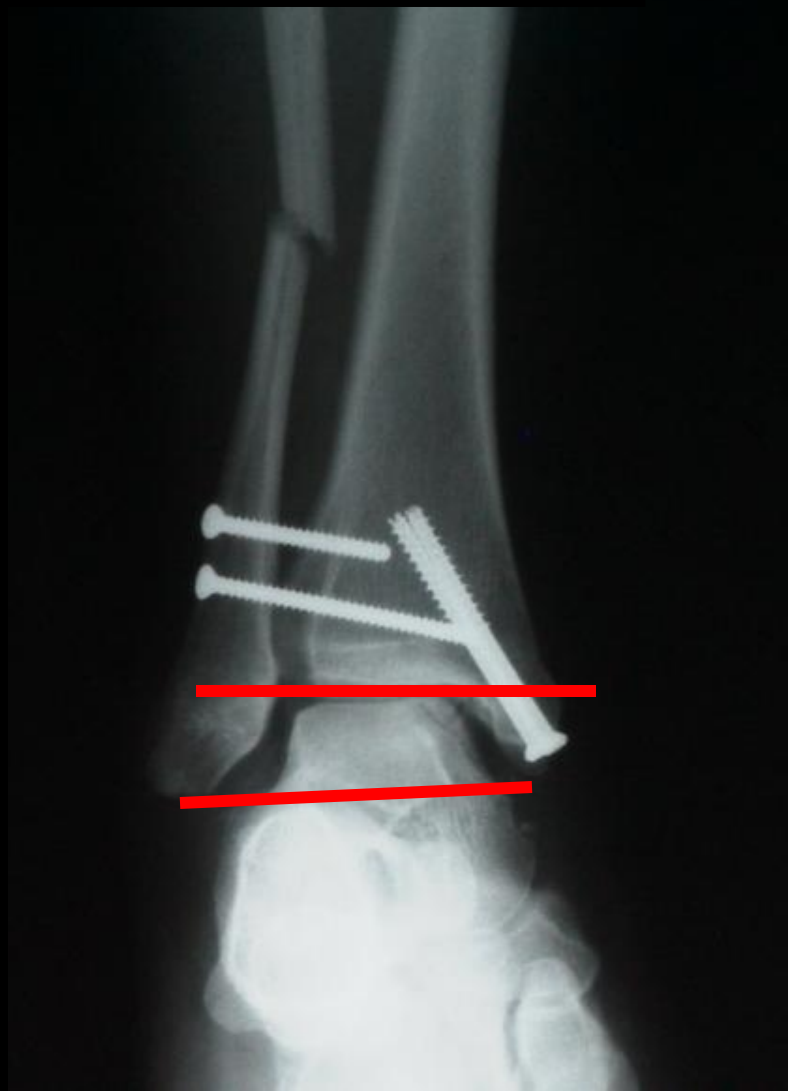
Key Point　MRI

Syndesmosis

Look carefully at ankle

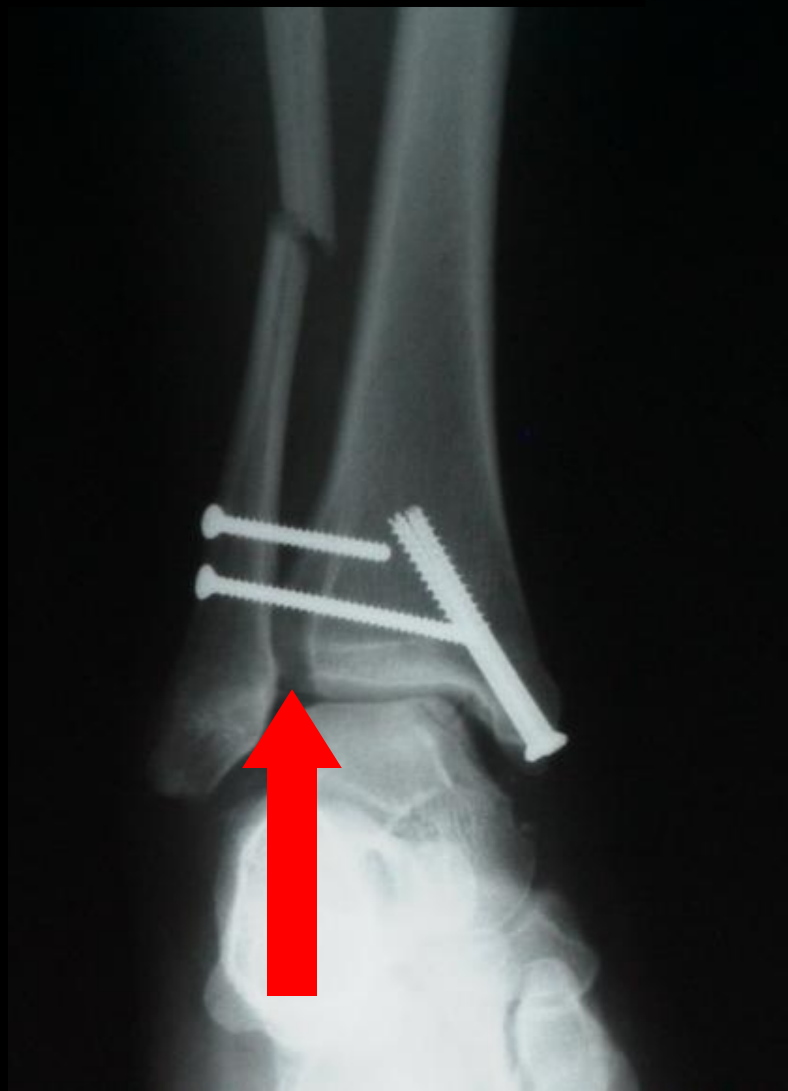
The problem

- Fibula Short

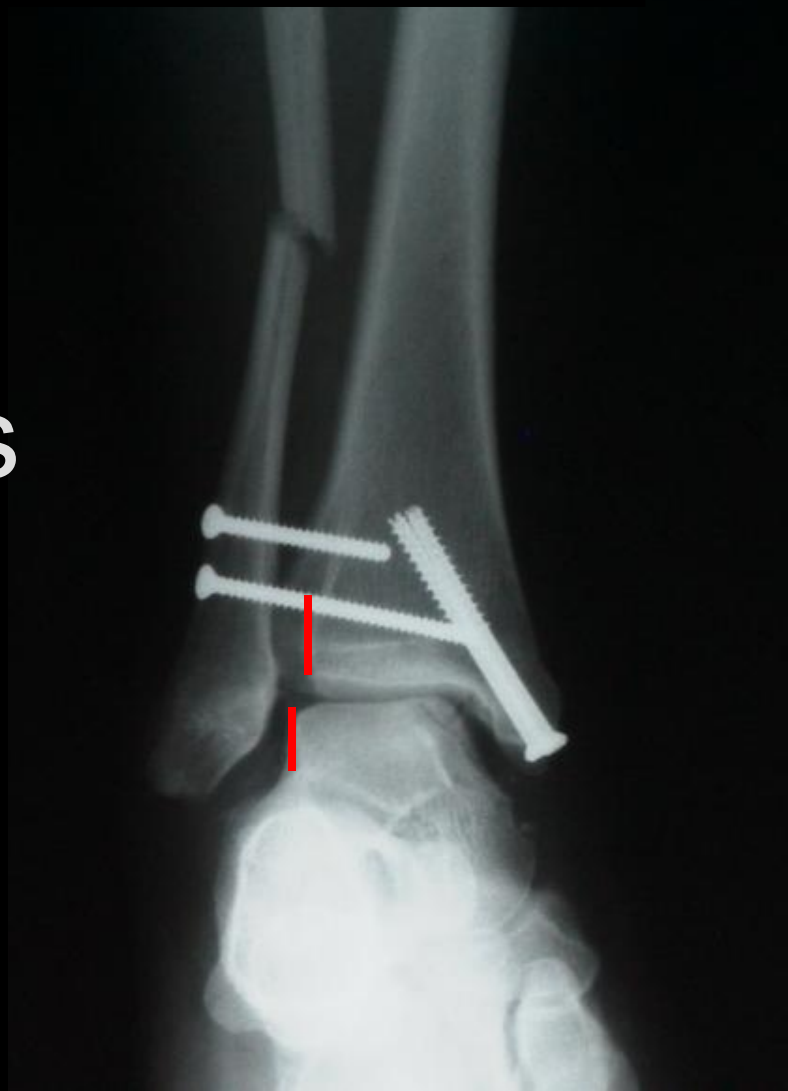


The problem

- Short fibula
- Wide syndesmosis



- Short fibula
- Wide syndesmosis
- Talus subluxed

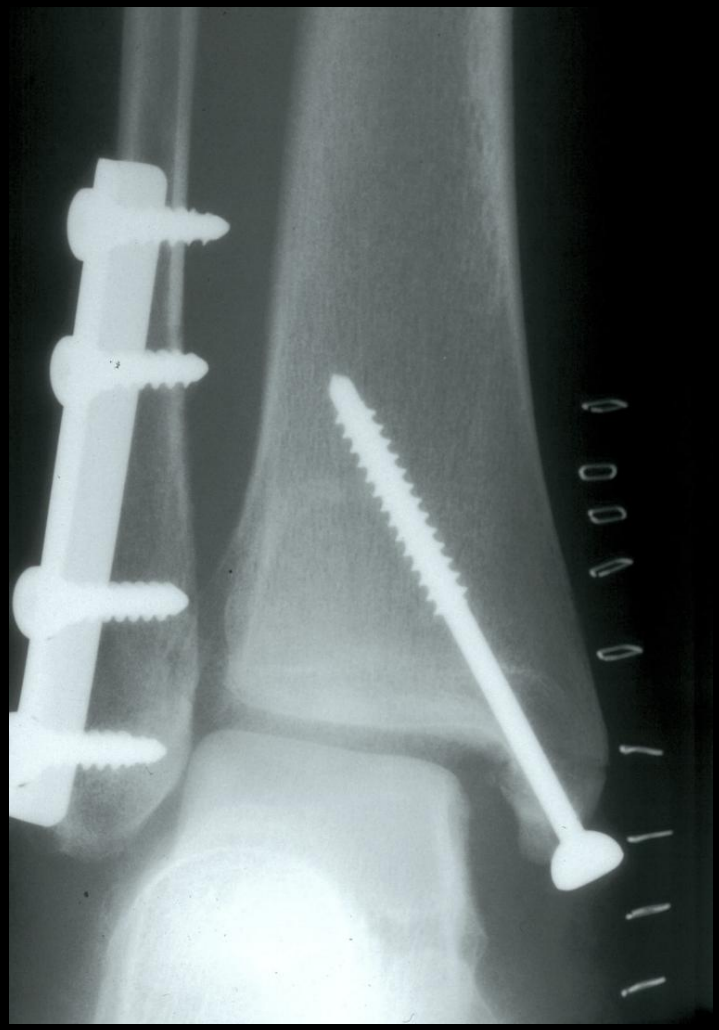


Salvage

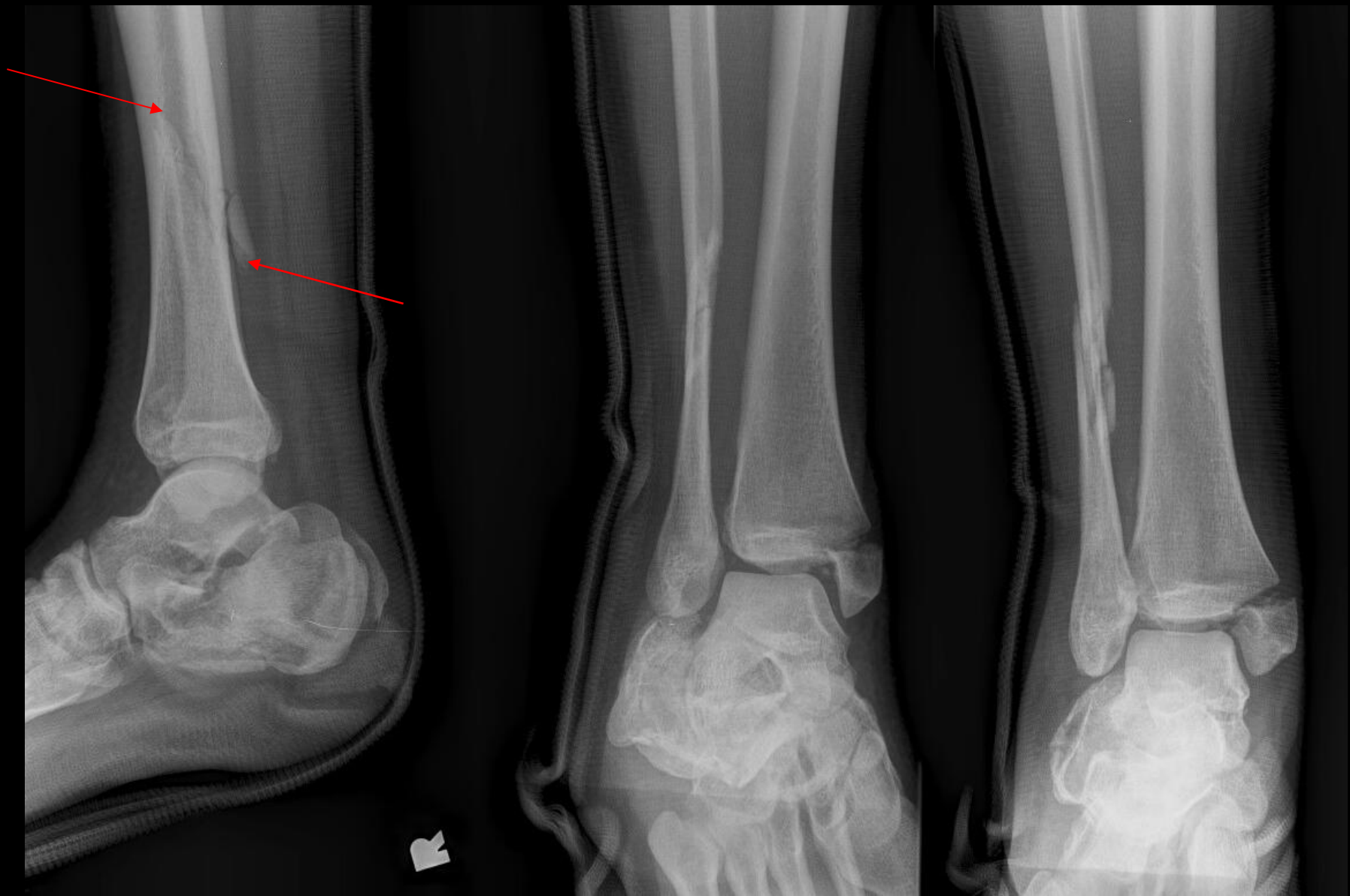
- Restore fibular length
  - Plating fibula
- Repair Syndesmosis
  - Syndesmotic screw
- Reduce talus

Key to syndesmosis

- Fibula:
  - length
  - rotation
- Open reduction of syndesmosis



22 y.o. M fall from height



The problem

- Short fibula
- Failed syndesmosis

1 year follow-up


R
23


1 week
post op

The problem

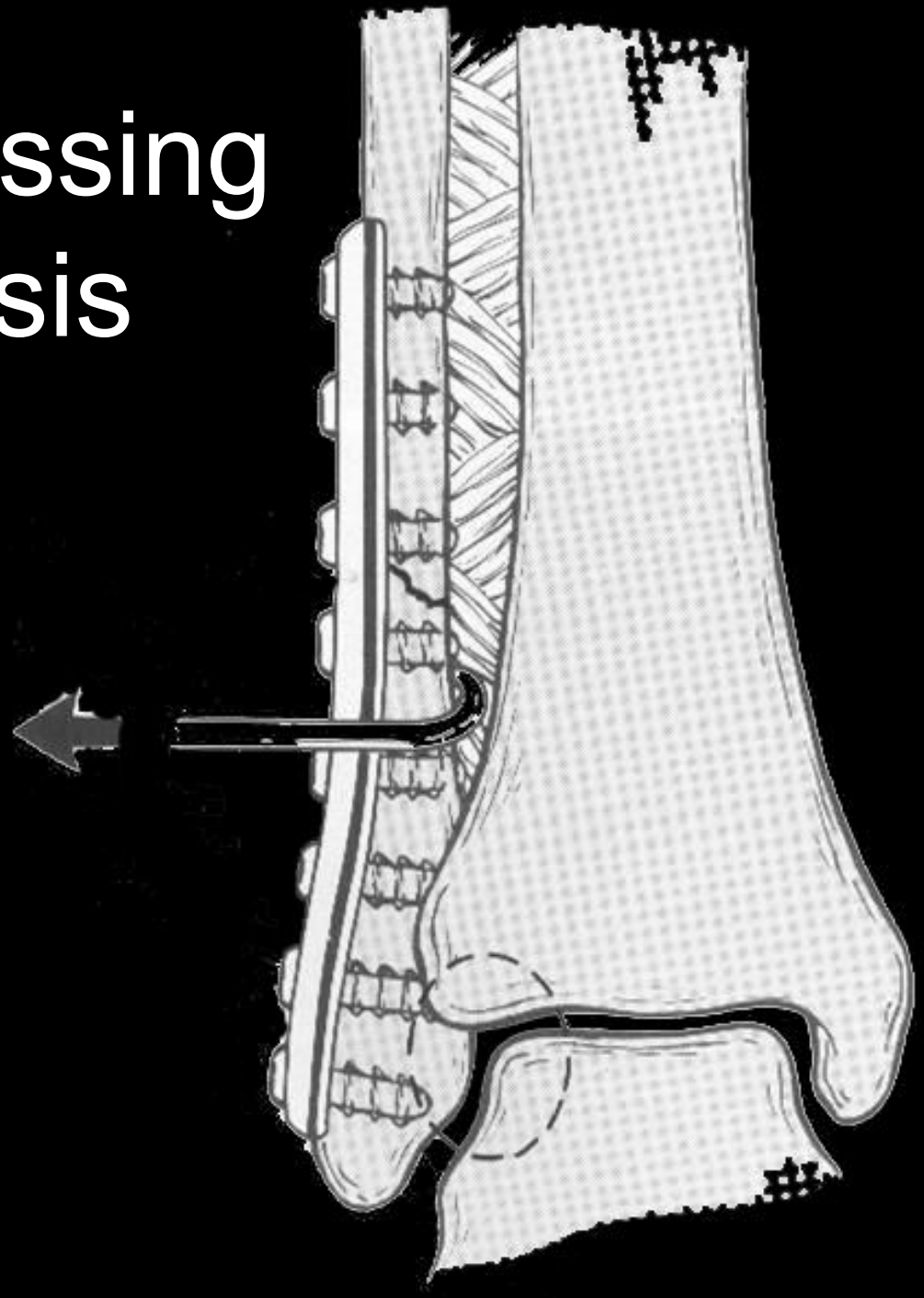
Wide Syndesmosis

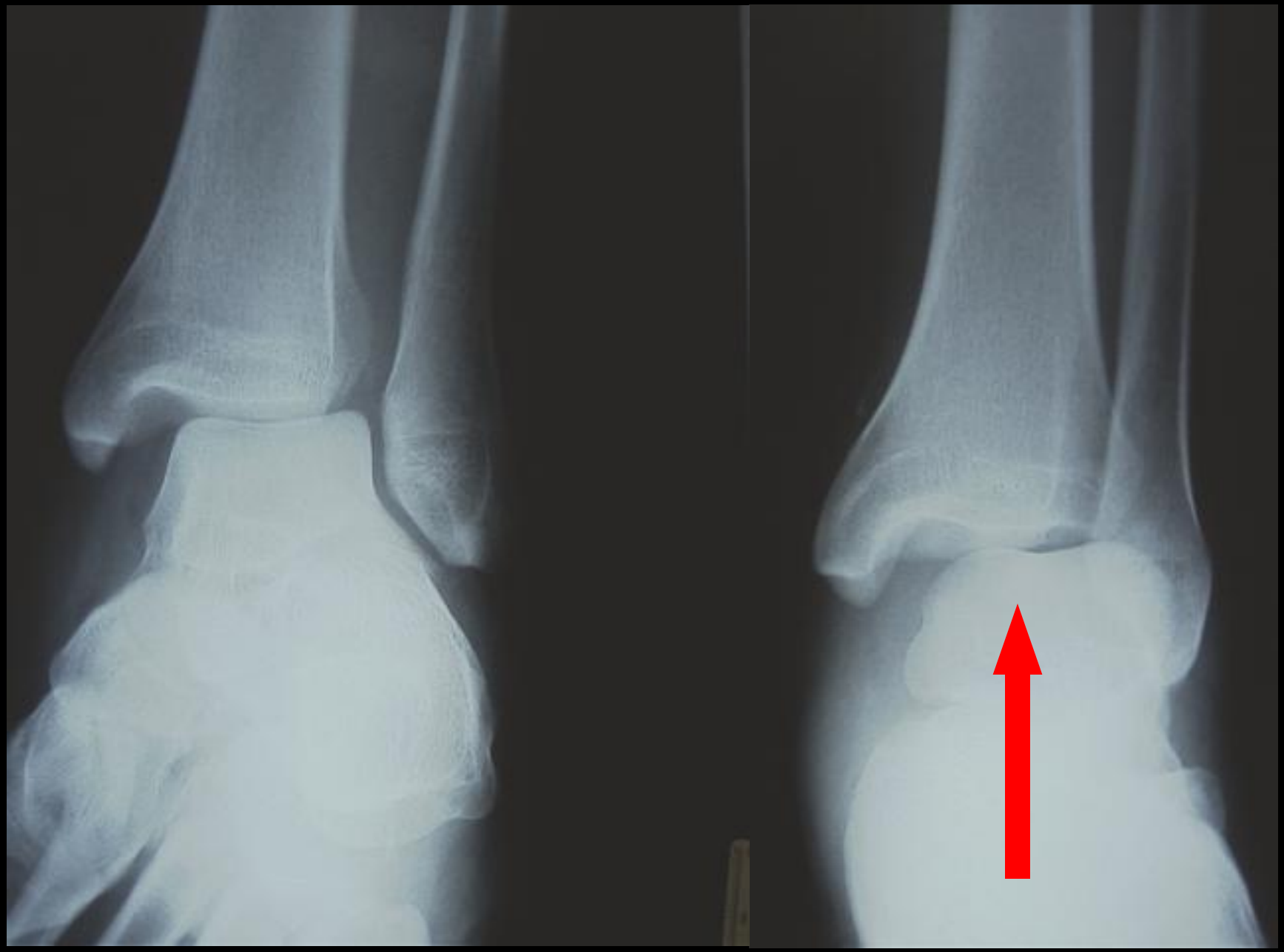
Salvage

Reduced & fixed syndesmosis

Avoid by stressing syndesmosis

- Cotton Test
- External rotation
- Dynamic





One week Post op

Still Wide?

Salvage

- Reduced & fixed syndesmosis

Syndesmosis:

- Screws only vs plate/screws:
  - screws if fibula fx ≥ mid 1/3
  - plate if distal 1/3 +/- length issues
  - Low threshold for open reduction of syndesmosis
- 1 vs 2 screws:
  - 2 if only screws (for rotational control)
- Removal:
  - not unless symptomatic and not loose(30% break)
  - delay at least 4 months
- 3.5mm screws

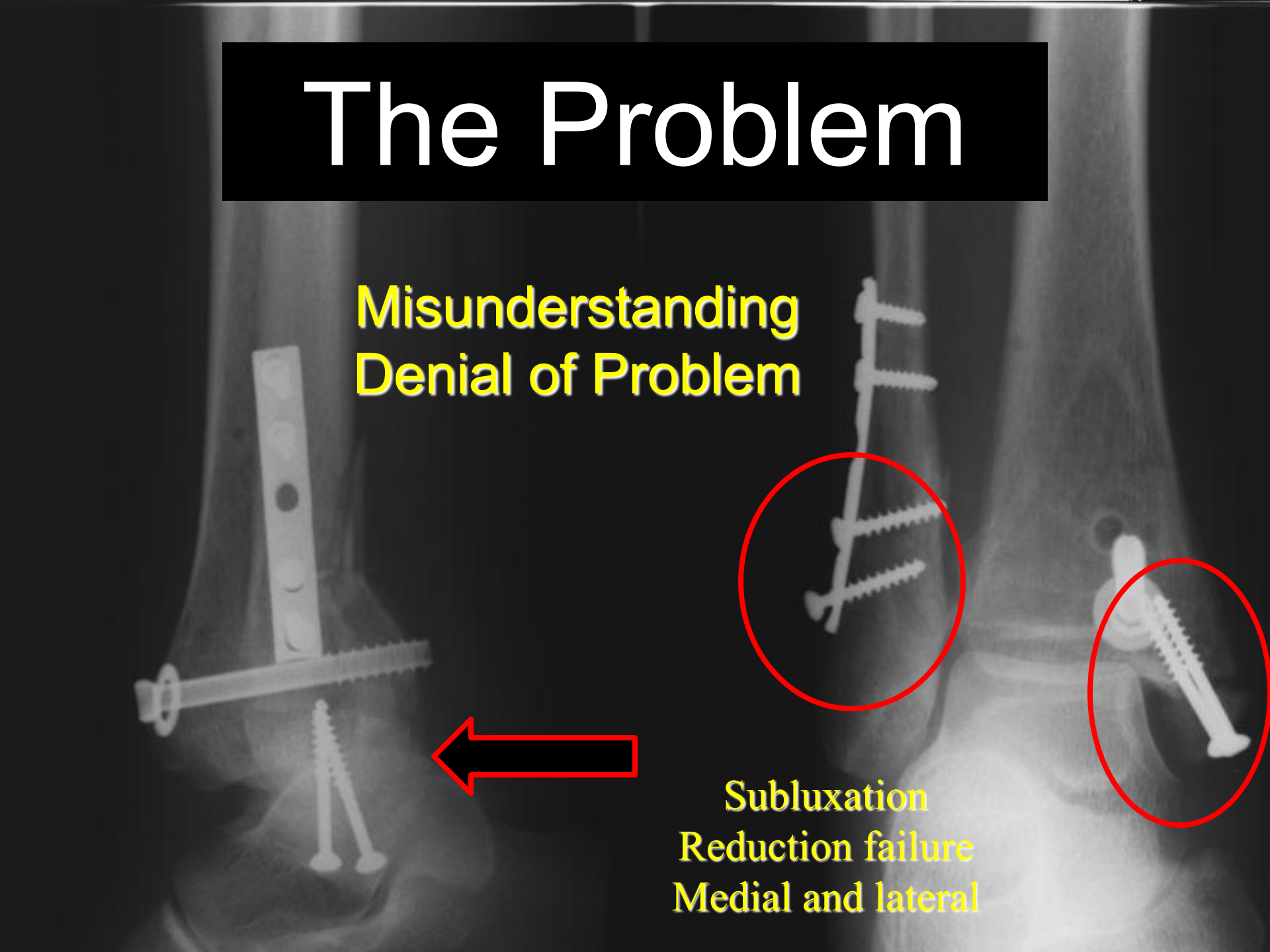
Thanks

- 30 year old SAD
- Vertical medial malleolus fracture
- Contralateral calcaneal fracture
- Referred for his foot fracture

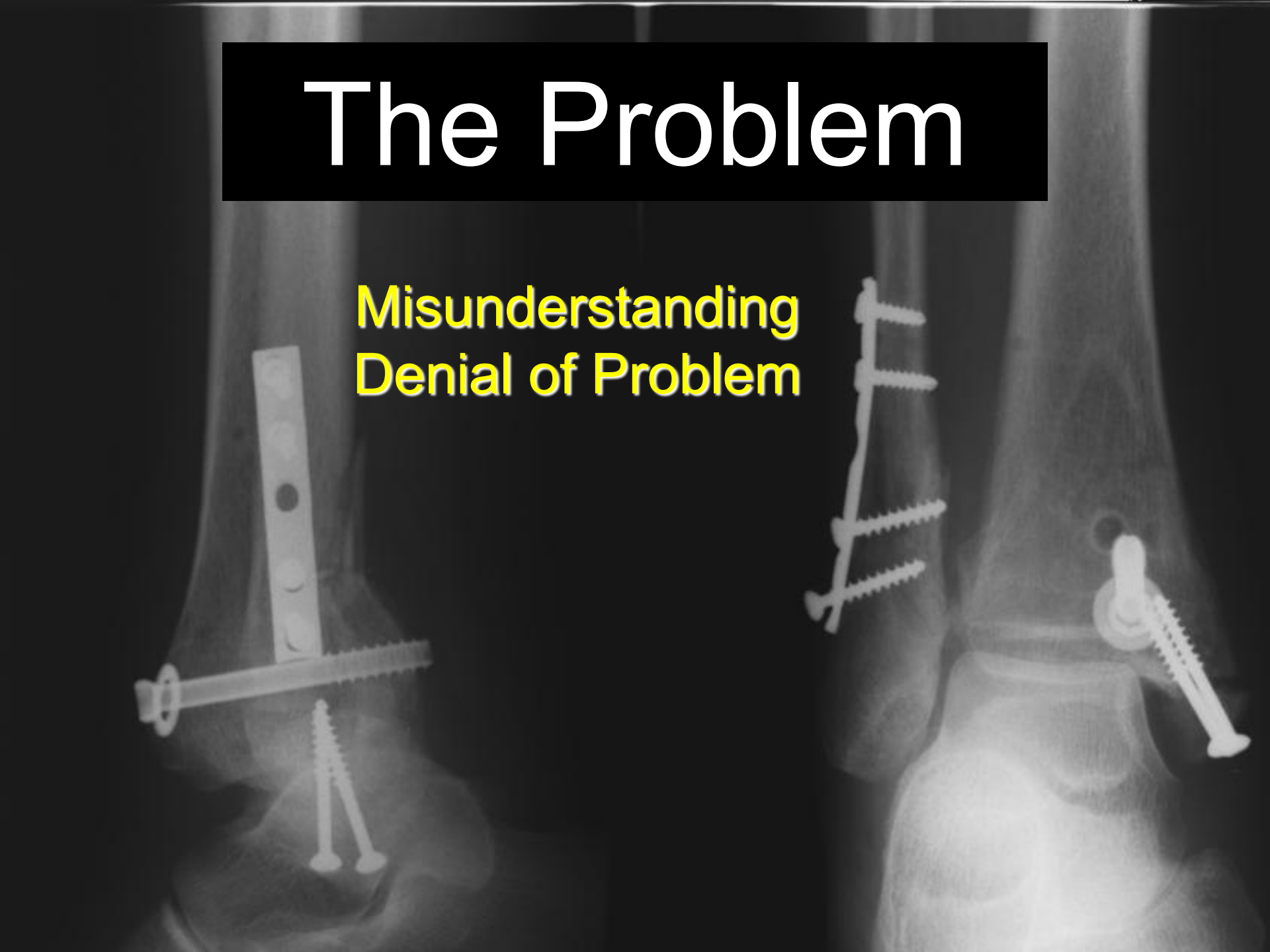
- 55 year old
- Motor Vehicle accident
- Trimalleolar fracture of the ankle
- One week complained of pain


5 weeks
Still hurts

The Problem


Misunderstanding
Denial of Problem
Subluxation
Reduction failure
Medial and lateral

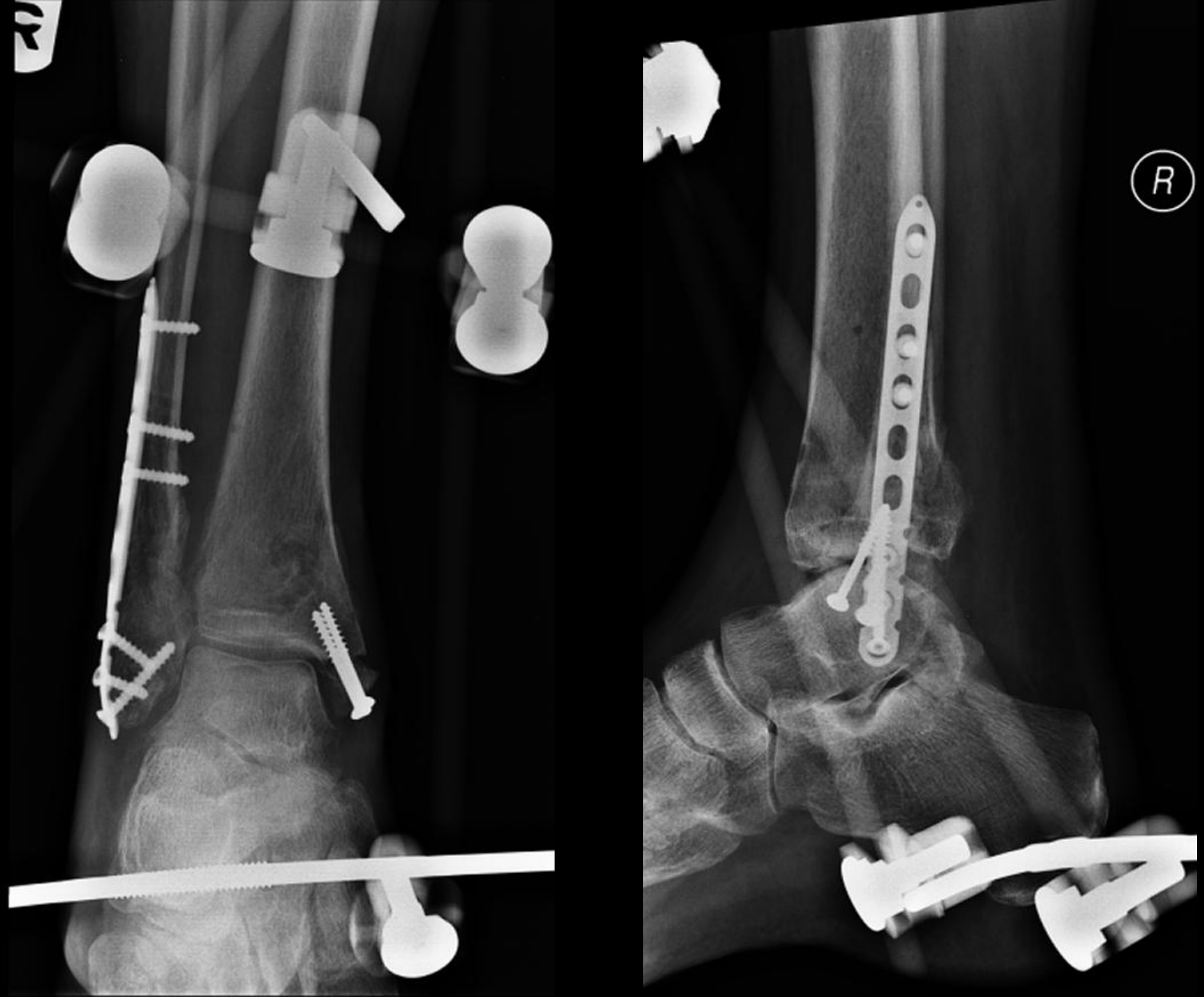
The Problem



Misunderstanding
Denial of Problem

Salvage

- Lateral Approach
- Clean out posterior malleolus
  - Too comminuted for fixation
- Re-fixation fibula
- External Fixator to hold reduction
- Medial side wound problems—Left alone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